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Smart Parking Tools, Technology and Techniques

Or, the Technological Fix

New Partners for Smart Growth 2012

Dr. Richard Lee, AICP | Fehr & Peers

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Picture of red car, http://colossus.net/parked.cgi/beta

Technology is as Technology Does

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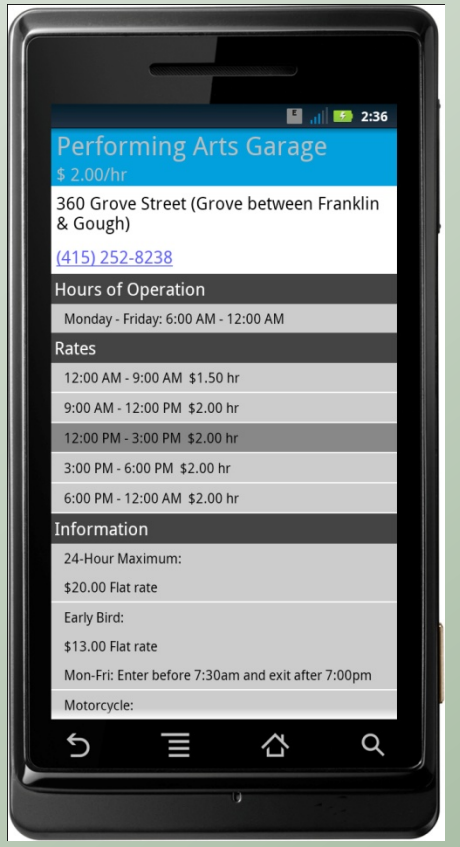
- And today, we want technology to do what we want, where ever we are
- Three SF Bay Area Case studies:
  - **San Francisco** (pop. 800,000+)
  - **Walnut Creek** (population 60,000+)
  - **Sausalito** (pop. 7,000+)
- First a survey:
- *How many of you have smart phones?*
- *How many have $1 in change?*
- *Can your change where there is an available space?*



Case Study I: SF *park*, San Francisco*:*

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- New Technology revolutionized parking management in San Francisco in 1947.
- Meters
  - Encourage turnover
  - Raise revenue
- But they are not state of the art anymore
- Hence SF *park*

Technology is tailored to San Francisco's goals

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Goals and benefits

- Reduce circling and double parking
  - Less congestion via reduced cruising for parking
  - Manage auto trip demand via price signals
  - Improve transit reliability – double-parking slows buses
  - Increase safety – frustrated parkers = distracted drivers
- Increase convenience
  - More availability
  - Better customer satisfaction
  - Increased economic vitality
  - Fewer parking tickets

The SF*park* pilot projects scope

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- Technology + Policy
- 2 year demos, these locations
- $24.75 million (20% is local match, rest is federal)
- 7 pilot areas
- ~6,000 metered spaces (25%)
- ~12,250 garage spaces (75%)

- 3 control areas (not shown)

SF *park* Home Page

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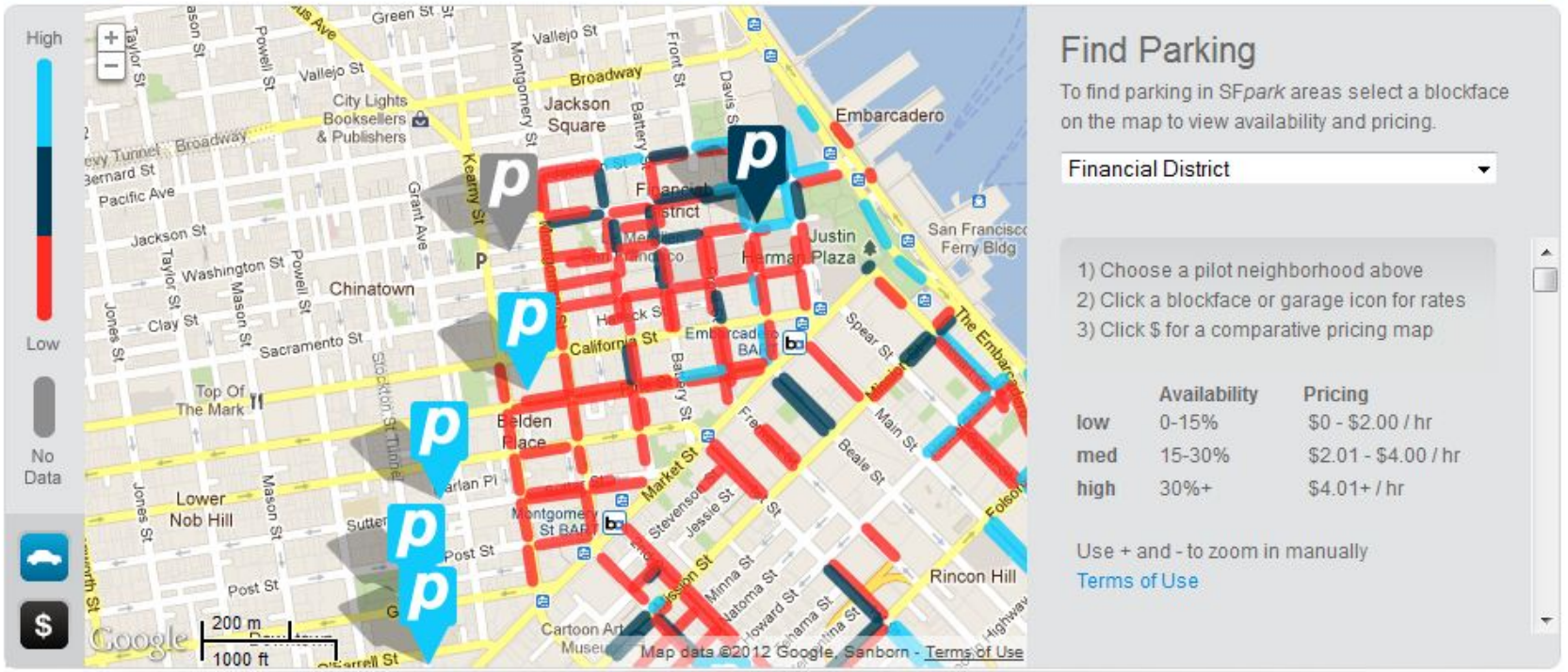
SFpark | The Project | How it Works | FAQ | Resources | News | Contact Us



Find Parking

To find parking in SF*park* areas select a blockface on the map to view availability and pricing.

Financial District

1) Choose a pilot neighborhood above
2) Click a blockface or garage icon for rates
3) Click $ for a comparative pricing map

	Availability	Pricing
low	0-15%	$0 - $2.00 / hr
med	15-30%	$2.01 - $4.00 / hr
high	30%+	$4.01+ / hr

Use + and - to zoom in manually

Terms of Use

Download the parking app

Check parking availability and pricing for San Francisco meters and garages from your smartphone using this FREE downloadable app

How much does parking cost?

Parking prices are incrementally raised or lowered in SF*park* pilot areas based on demand. Rates change no more than once a month and only in

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SFMTA SF*park* study shows 14% fewer citations, 27% more meter payments with new meters and longer time limits

1. Information technology

- Sensors
- Web-based
- Street-level data
- Open XML feed
  - Machine Readable
  - Human Readable
  - SmartPhones too

3. Pricing, & Communicating the Price

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- Demand-responsive
- Location/day/time/events
- Changes adjust gradually
- Lowest prices possible

Time	Price/Hour
9 am - 11 am	$2.50
11 am – 2 pm	$3.50
2 pm – 6 pm	$2.00

example

2. Payment Technology

- Improved experience
- Easy to pay
- Longer time limits

Enforcement: Fines down, but fees up

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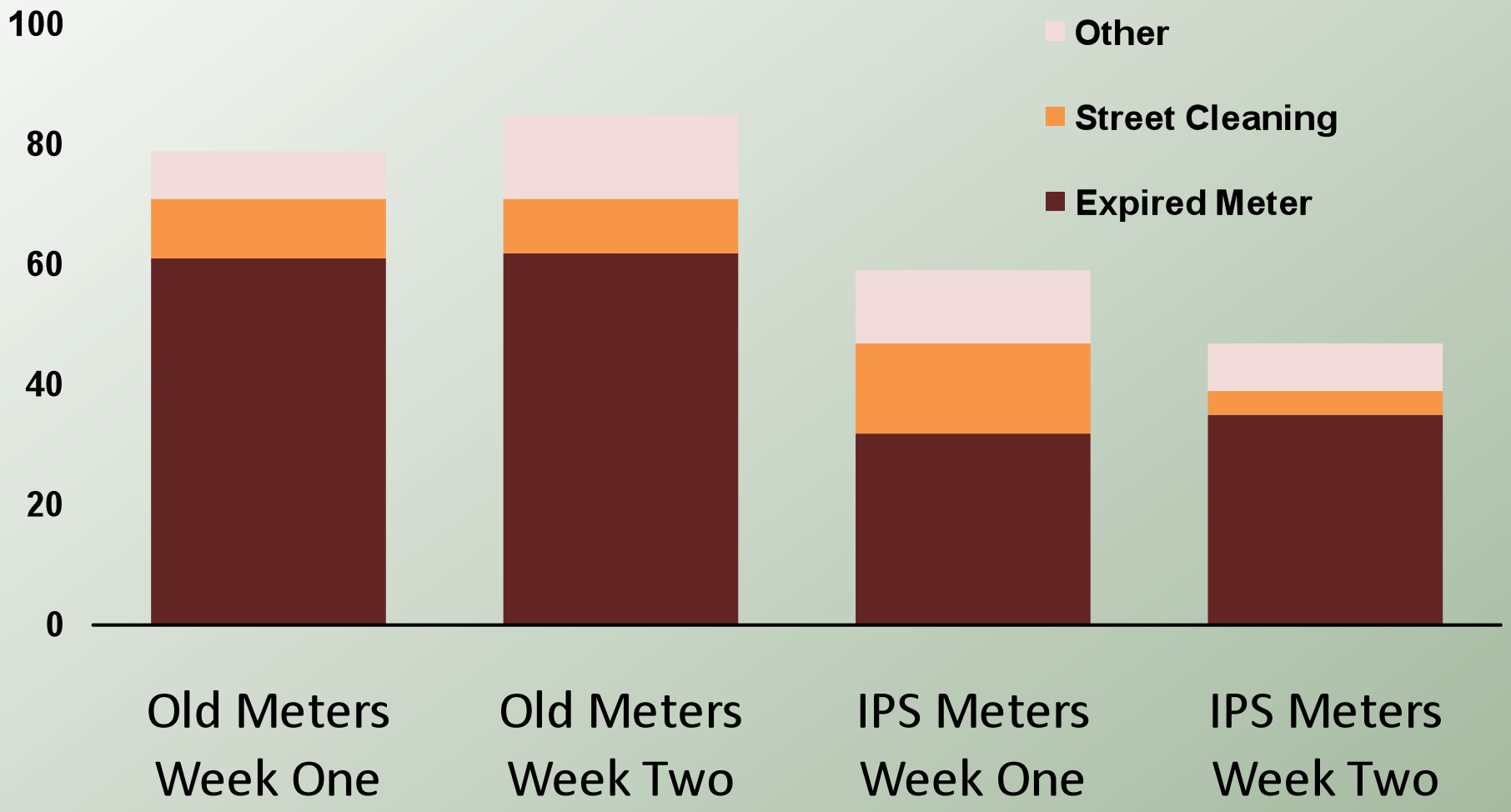


Case 2: Walnut Creek, CA

Techniques & Technology to Increase Effective Supply in a Suburban Downtown

- A familiar problem: employees are parking in prime customer spaces located on the first & second floors of both garages

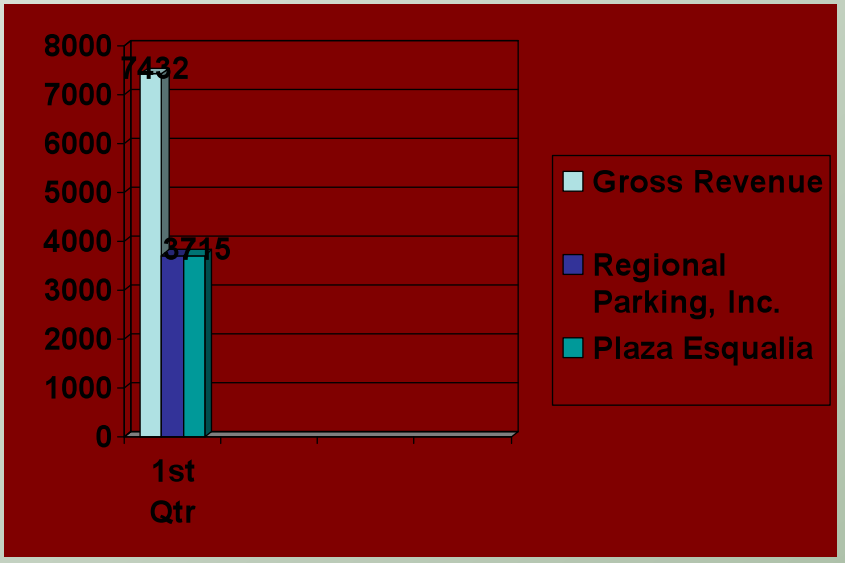
- ParkSmart (Regional Parking, Inc.) proposal: employees get annual hang tag parking permits and required to park on the roof tops of each garage

Package includes PRIVATE Parking Meters

42 Spaces on Ground Floor Level get meters

- Regional Parking, Inc. shall install 42 parking meters on the first level at RP Inc. expense
- Regional Parking, Inc. shall maintain parking meters, provide collections, repairs, auditing and bank services…
- Plaza Escuela may increase the meter rates at any time
- Regional Parking, Inc. shall pay Plaza Escuela **50%** of the gross parking meter revenue collected.

Projected Monthly Revenue: **$7,432**



Calculation: 9am – 12pm 25% Occupancy: 12:pm – 2pm 85% Occupancy: 2pm – 5pm 25% Occupancy: 5pm – 7pm 85% Occupancy: 7pm – 10pm 35% Occupancy

Private Parking Meters – pay & display

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Park Smart
REGIONAL PARKING, INC.

Private Metered Lots in Walnut Creek

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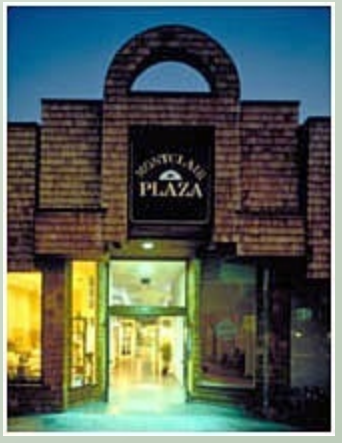
200 spaces - Equivalent to a $5 million garage

Peet's Coffee & Tea

PYRAMID ALES & LAGERS



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Park Smart REGIONAL PARKING, INC.

Park Smart Goal: Make it easier to pay fees AND easier to avoid fines

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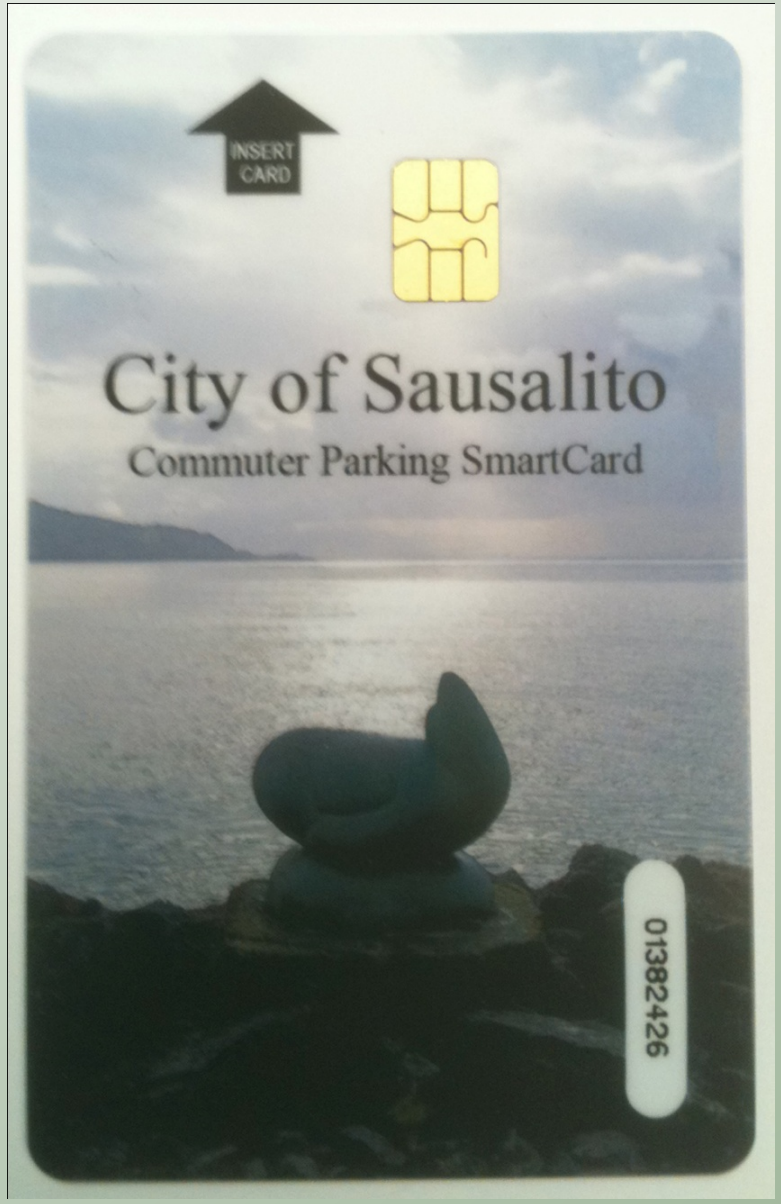
Park Smart
REGIONAL PARKING, INC.

Case Study 3: Sausalito, CA

- A unique small city with unique parking issues
- Many commuters (the city has a major ferry bus terminal) –see card→
- Many tourists
- Nice place to live, and residents want to keep it that way



Different SmartCards for different needs

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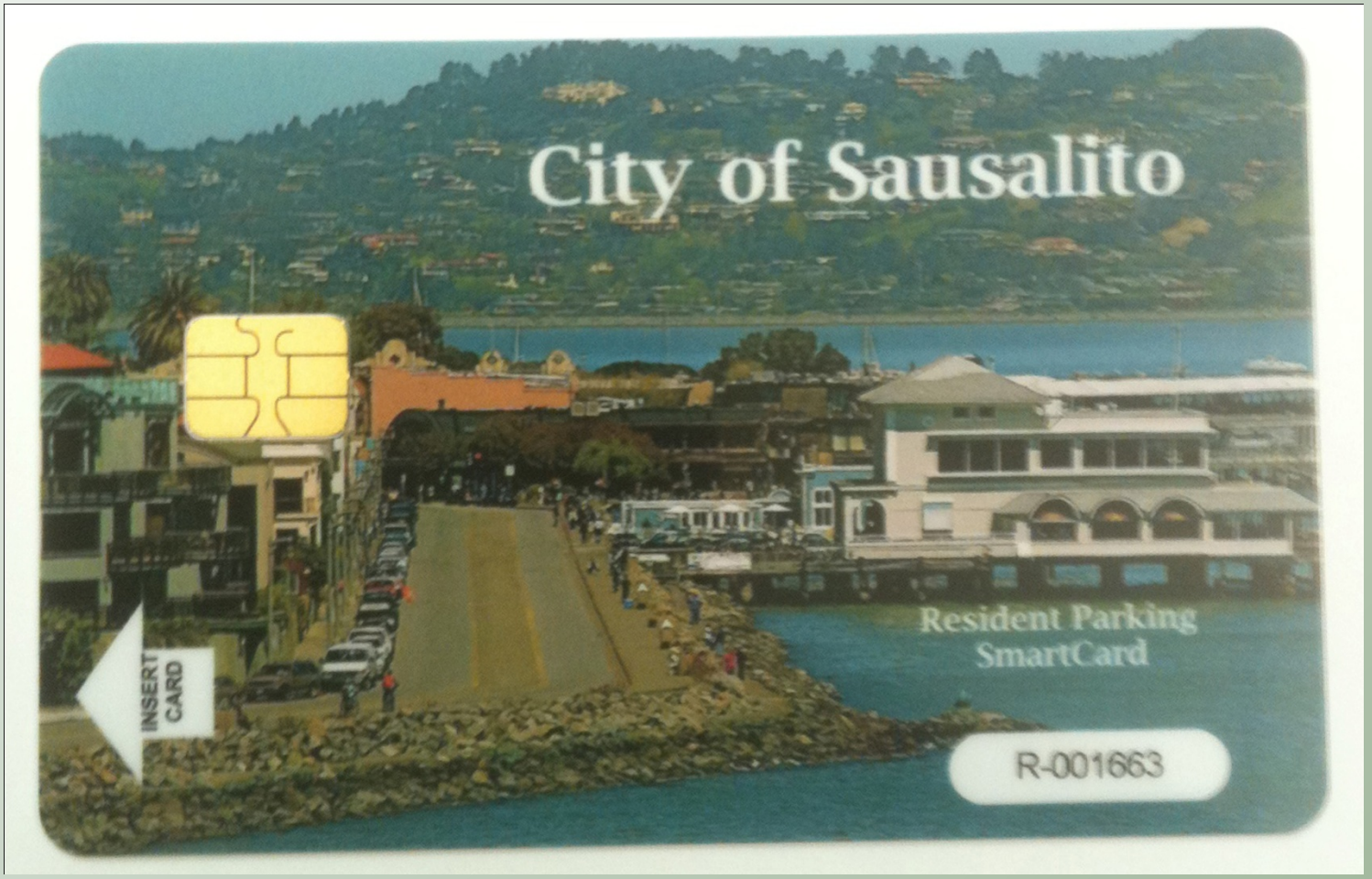
Resident Parking Card – includes 3 hrs free



Sausalito – Smart Parking in smaller city

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- Aparc Systems adapted and calibrated remote sensors and data processing
- Proof that the SF Park approach can be replicated in a smaller cities
- Similar technology, different goals for a unique environment
- Technology is subtle…

Sausalito – Smart Parking in smaller city

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- Parking a major challenge and revenue source
- Proof that the SF Park approach can be replicated in a smaller cities
- Similar technology, different goals for a unique environment
- Technology is subtle

Sausalito – Smart Parking in smaller city

In Summary:…

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- Public agencies lucky enough to have parking for rent should make the most of it for themselves and their customers. In particular, they should consider following constellation of strategies:

  - Moving toward professional management of parking
  - Monitoring and adjusting off-street and curbside parking pricing closer to market rate and “parking benefit districts”
  - Encourage sharing of private parking for a fee (and with fee sharing)
  - Using emerging technology to do all of the above

Time for a smarter approach to parking

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- Do a Parking Census
  - On-street and Off-street
  - Identify Special Needs (disabled parking, e.g.)
- Smarten up your spaces with sensors enabling remote detection of Occupancy critical data: are you <, =, or > 85%?
- As needed adjust
  - Pricing
  - Enforcement
  - Marketing and communications
- Lots of Data – Evaluate policies in almost real time

Resources & Acknowledgements

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- Don Shoup, *The High Cost of Free Parking* (2005, 2011)
- ITE *Journal, Smart Growth Parking Requirements Review* (December 2010); Lee, Watten & Rees

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Parking Day Intermission

- http://www.flickr.com/groups/worldparkingday/pool/show/